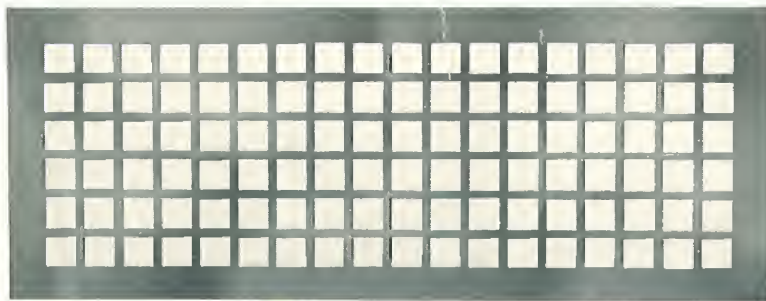# H&C

WROUGHT ~STEEL~ GRILLES

Number 575

(No. 1 of a Series)
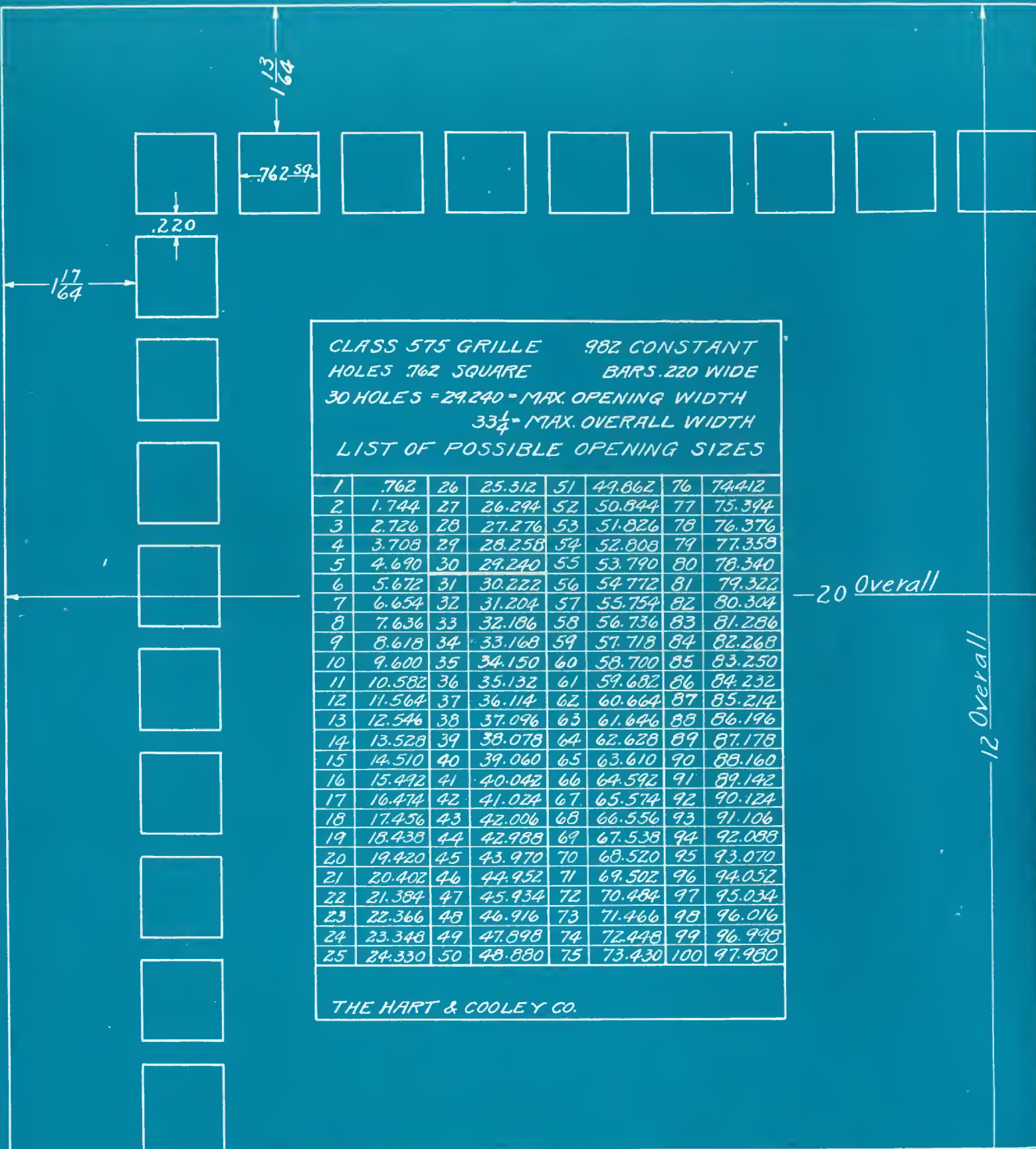
The Hart & Cooley Company, Inc.
NEW BRITAIN, CONN.

New York   Philadelphia   Chicago   Boston

CLASS 575 GRILLE   .982 CONSTANT
HOLES .762 SQUARE   BARS .220 WIDE
30 HOLES = 29.240 = MAX. OPENING WIDTH
$33\frac{1}{4}$ = MAX. OVERALL WIDTH
LIST OF POSSIBLE OPENING SIZES

1	.762	26	25.312	51	49.862	76	74.412
2	1.744	27	26.294	52	50.844	77	75.394
3	2.726	28	27.276	53	51.826	78	76.376
4	3.708	29	28.258	54	52.808	79	77.358
5	4.690	30	29.240	55	53.790	80	78.340
6	5.672	31	30.222	56	54.772	81	79.322
7	6.654	32	31.204	57	55.754	82	80.304
8	7.636	33	32.186	58	56.736	83	81.286
9	8.618	34	33.168	59	57.718	84	82.268
10	9.600	35	34.150	60	58.700	85	83.250
11	10.582	36	35.132	61	59.682	86	84.232
12	11.564	37	36.114	62	60.664	87	85.214
13	12.546	38	37.096	63	61.646	88	86.196
14	13.528	39	38.078	64	62.628	89	87.178
15	14.510	40	39.060	65	63.610	90	88.160
16	15.492	41	40.042	66	64.592	91	89.142
17	16.474	42	41.024	67	65.574	92	90.124
18	17.456	43	42.006	68	66.556	93	91.106
19	18.438	44	42.988	69	67.538	94	92.088
20	19.420	45	43.970	70	68.520	95	93.070
21	20.402	46	44.952	71	69.502	96	94.052
22	21.384	47	45.934	72	70.484	97	95.034
23	22.366	48	46.916	73	71.466	98	96.016
24	23.348	49	47.898	74	72.448	99	96.998
25	24.330	50	48.880	75	73.430	100	97.980

THE HART & COOLEY CO.

$1\frac{3}{64}$
.762 SQ.
.220
$1\frac{17}{64}$
—20 Overall
12 Overall

All Grilles shall be those manufactured by The Hart & Cooley Co., Inc., of New Britain, Conn., class No. 575 $^{.134}_{.109}$ thick (Steel, Brass, Bronze) finished in (Prime Coat, Black Japan, White Japan, Electro Plated—give color—Bronze paint)per sizes shown on plans which represent the $^{opening}_{overall}$ dimensions.   Margins shall be approximately _____ inches all around.

All Grilles when delivered on the job, shall be flat and all fretwork shall line up through the length and width of each grille. Furnish Do Not Furnish { Grilles drilled for } Woodwork Marble attaching to surrounding each opening.
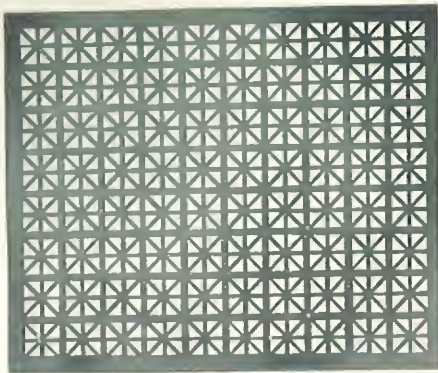
Layout of Class #575 Grille
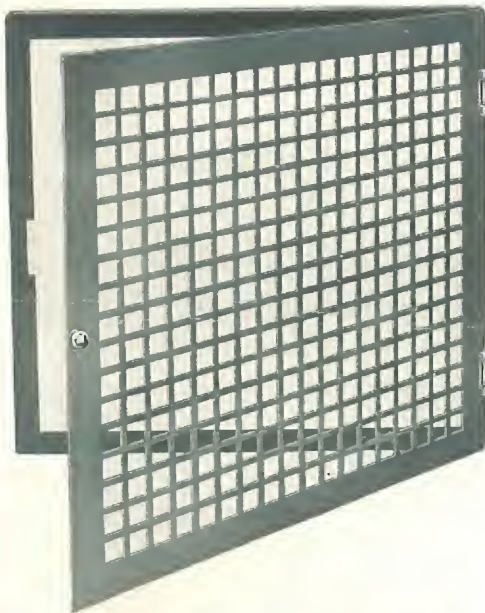
982 Constant

THE HART & COOLEY CO.

5-23-23

Three Other H & C Grilles

No. 573

GREEK OR UNION JACK DESIGN

Artistic square 3″ opening. Frets between squares ⅜″. Furnished in .109 or .134 thick brass, bronze or steel. Overall sizes up to 48″ wide by 84″ long.

No. 575

CONCEALED FRAME

Any grille of classes 570, 572, 573, 575, 576 or 578, as shown in our catalog, may be furnished hinged (or screwed) to concealed frame as shown, complete with knob and spring catch. Standard frame made from 1″ x 1″ x ⅛″ angle, but size of angle may be varied to meet conditions.
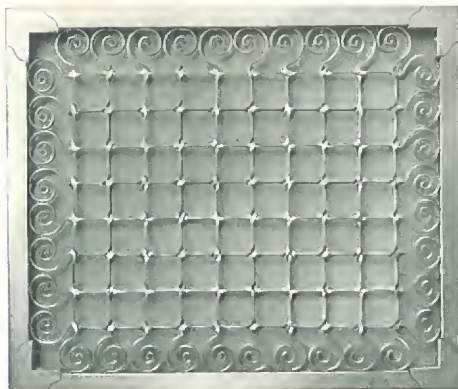
No. 126

WIRE GRILLE

Made from 1⁄16″ x 5⁄16″ flat wire, ¼ twist, 1¾″, 1½″ or 1¼″ mesh. Scroll border, 1″ x 1″ x ⅛″ angle frame, cast corners. Can also be furnished without scroll border at somewhat lower price.
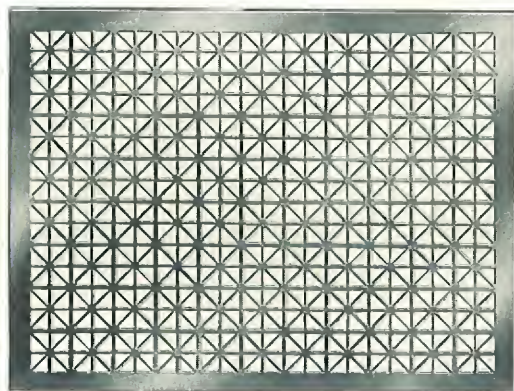
The stock used for H&C Electroplated Grilles is the highest grade of cold rolled steel. (Also made of bronze or brass.) They are perfectly flat, making installation very easy and the frets line up throughout the entire length and width of the Grille.

Details of our other classes of Grilles sent on request.

H&C

WROUGHT ~ STEEL ~ GRILLES

Number 573
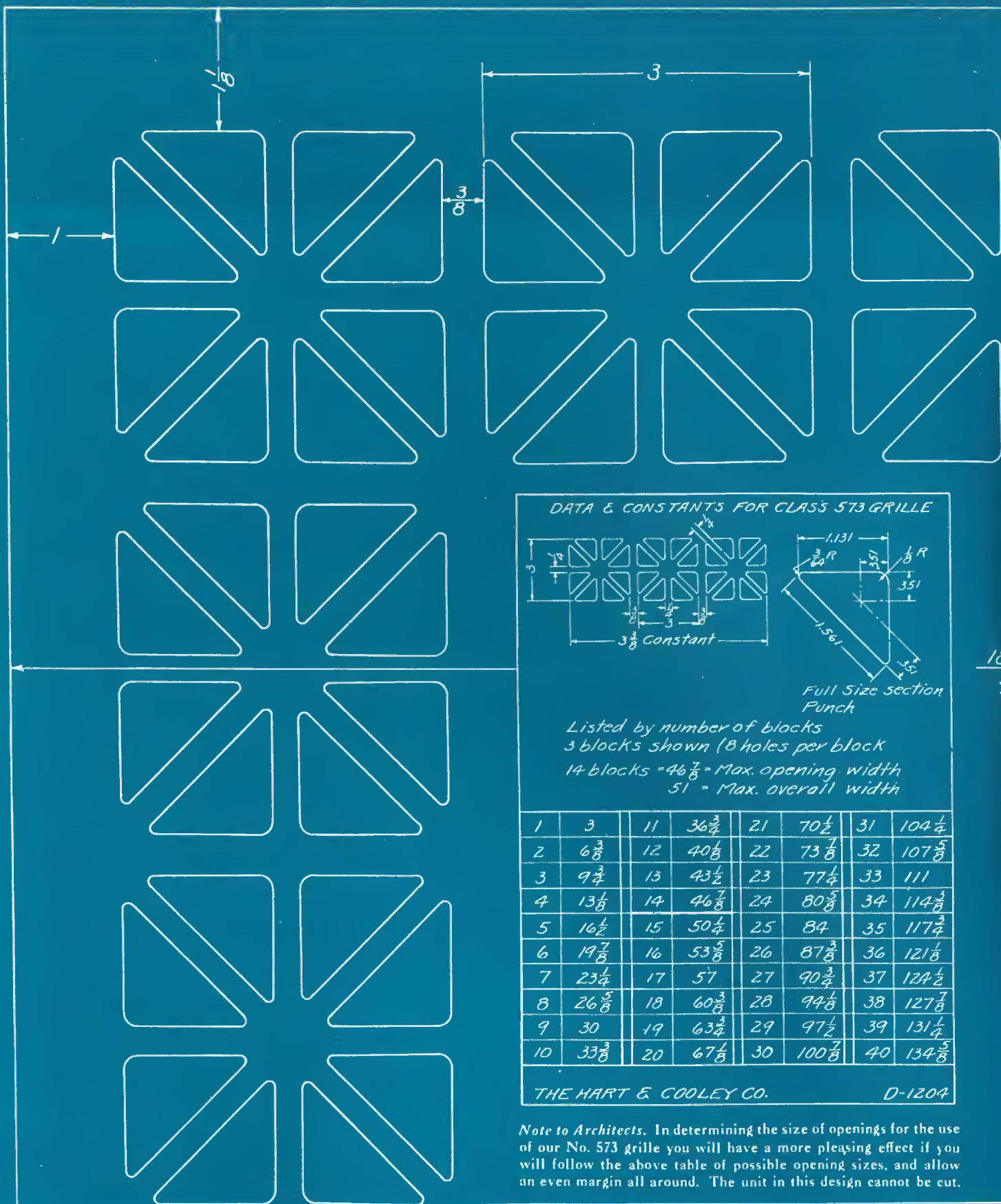

The Hart & Cooley Company
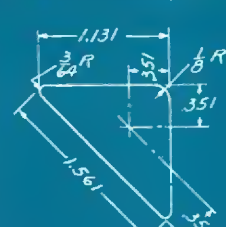
New Britain, Conn.

New York   Philadelphia   Chicago

(Folder Number 2 of a Series)

DATA & CONSTANTS FOR CLASS 573 GRILLE

3⅜ Constant

Full Size section
Punch

Listed by number of blocks
3 blocks shown (8 holes per block

14 blocks = 46⅞ = Max. opening width
51 = Max. overall width

1	3	11	36¾	21	70½	31	104¼
2	6⅜	12	40⅛	22	73⅞	32	107⅝
3	9¾	13	43½	23	77¼	33	111
4	13⅛	14	46⅞	24	80⅝	34	114¾
5	16½	15	50¼	25	84	35	117¾
6	19⅞	16	53⅝	26	87⅜	36	121⅛
7	23¼	17	57	27	90¾	37	124½
8	26⅝	18	60⅜	28	94⅛	38	127⅞
9	30	19	63¾	29	97½	39	131¼
10	33⅜	20	67⅛	30	100⅞	40	134⅝

THE HART & COOLEY CO.   D-1204

Note to Architects. In determining the size of openings for the use
of our No. 573 grille you will have a more pleasing effect if you
will follow the above table of possible opening sizes, and allow
an even margin all around. The unit in this design cannot be cut.

All Grilles shall be those manufactured by The Hart & Cooley Co., Inc., of New Britain, Conn., class No. 573 :134 :109 thick (Steel, Brass, Bronze) finished in (Prime Coat, Black Japan, White Japan, Electro plated—give color— Bronze paint) per sizes shown on plans which represent the opening overall dimensions. Margins shall be approximately — inches all around.

All Grilles when delivered on the job, shall be flat and all fret-work shall line up through the length and width of each grille.

Furnish | Grilles drilled for attaching to } Woodwork
Do Not | Marble
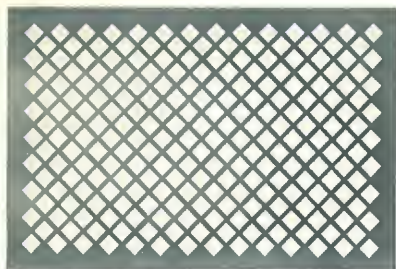Furnish | surrounding each opening.

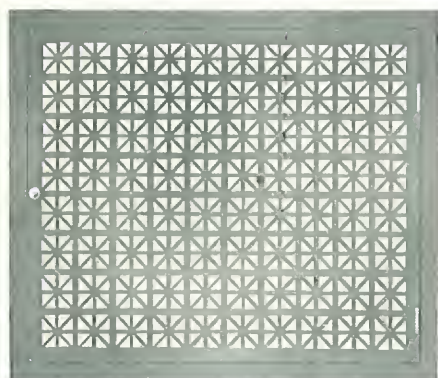*Layout of Class #573 Grille*
3 3/8 Constant
THE HART & COOLEY CO.
@ 5-24-23

Three Other H & C Grilles

No. 572
DIAMOND OR DIAGONAL LATTICE

Diagonal lattice, ¾" mesh, ¼" bars made in any width up to 48 inches overall, length up to 84 inches overall, may be adapted to any use. Made from .109-.134 or thinner steel, brass or bronze.

No. 573
WITH OUTSIDE FRAME

Any grille of classes 570, 572, 573, 575, or 576 as shown in our catalog, may be furnished hinged (or screwed) to outside frame as shown, complete with knob and spring catch. Standard frame made from 1"x 1 x ⅛" angle, but size of angle may be varied to meet conditions.

No. 590

A grille designed for ventilation without permitting a view to the space beyond. Louvres or hoods can be either 7½ or 4" wide and are parallel to widths made from 16-gauge (.065) or thinner steel, brass or bronze. Widths 6 inches to 30 inches overall.

The stock used for H & C Electroplated Grilles is the highest grade of cold rolled steel. (Also made of bronze or brass.) They are perfectly flat, making installation very easy and the frets line up throughout the entire length and width of the Grille. Details of our other classes of Grilles sent on request.

H&C

WROUGHT ~STEEL~ GRILLES
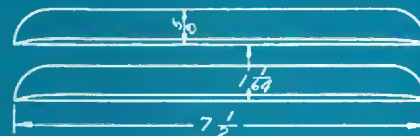
Number 590

(Number 3 of a Series)

The Hart & Cooley Company

New Britain, Conn.

New York   Philadelphia   Chicago   Boston

CLASS 590 GRILLES

LIST OF POSSIBLE OPENING SIZES

1	$\frac{5}{8}$	21	$20\frac{13}{16}$	41	$41\frac{1}{4}$	61	$61\frac{7}{16}$	81	$81\frac{7}{8}$
2	$1\frac{41}{64}$	22	$21\frac{41}{64}$	42	$42\frac{17}{64}$	62	$62\frac{31}{64}$	82	$82\frac{57}{64}$
3	$2\frac{21}{32}$	23	$22\frac{31}{32}$	43	$43\frac{9}{32}$	63	$63\frac{19}{32}$	83	$83\frac{29}{32}$
4	$3\frac{49}{64}$	24	$23\frac{63}{64}$	44	$44\frac{19}{64}$	64	$64\frac{39}{64}$	84	$84\frac{59}{64}$
5	$4\frac{11}{16}$	25	25	45	$45\frac{5}{16}$	65	$65\frac{5}{8}$	85	$85\frac{15}{16}$
6	$5\frac{49}{64}$	26	$26\frac{1}{64}$	46	$46\frac{21}{64}$	66	$66\frac{41}{64}$	86	$86\frac{41}{64}$
7	$6\frac{23}{32}$	27	$27\frac{1}{32}$	47	$47\frac{11}{32}$	67	$67\frac{21}{32}$	87	$87\frac{31}{32}$
8	$7\frac{47}{64}$	28	$28\frac{3}{64}$	48	$48\frac{23}{64}$	68	$68\frac{43}{64}$	88	$88\frac{43}{64}$
9	$8\frac{3}{4}$	29	$29\frac{1}{16}$	49	$49\frac{3}{8}$	69	$69\frac{11}{16}$	89	90
10	$9\frac{49}{64}$	30	$30\frac{5}{64}$	50	$50\frac{25}{64}$	70	$70\frac{45}{64}$	90	$91\frac{1}{4}$
11	$10\frac{25}{32}$	31	$31\frac{3}{32}$	51	$51\frac{13}{32}$	71	$71\frac{23}{32}$	91	$92\frac{1}{32}$
12	$11\frac{51}{64}$	32	$32\frac{5}{64}$	52	$52\frac{27}{64}$	72	$72\frac{47}{64}$	92	$93\frac{3}{64}$
13	$12\frac{7}{16}$	33	$33\frac{1}{8}$	53	$53\frac{7}{16}$	73	$73\frac{3}{4}$	93	$94\frac{1}{16}$
14	$13\frac{13}{64}$	34	$34\frac{9}{64}$	54	$54\frac{29}{64}$	74	$74\frac{49}{64}$	94	$95\frac{5}{64}$
15	$14\frac{27}{32}$	35	$35\frac{5}{32}$	55	$55\frac{15}{32}$	75	$75\frac{44}{64}$	95	$96\frac{3}{32}$
16	$15\frac{55}{64}$	36	$36\frac{11}{64}$	56	$56\frac{31}{64}$	76	$76\frac{41}{64}$	96	$97\frac{7}{64}$
17	$16\frac{7}{8}$	37	$37\frac{3}{16}$	57	$57\frac{1}{2}$	77	$77\frac{13}{16}$	97	$98\frac{1}{8}$
18	$17\frac{47}{64}$	38	$38\frac{13}{64}$	58	$58\frac{33}{64}$	78	$78\frac{43}{64}$	98	$99\frac{9}{64}$
19	$18\frac{29}{32}$	39	$39\frac{7}{32}$	59	$59\frac{17}{32}$	79	$79\frac{27}{32}$	99	$100\frac{5}{32}$
20	$19\frac{59}{64}$	40	$40\frac{15}{64}$	60	$60\frac{35}{64}$	80	$80\frac{45}{64}$	100	$101\frac{11}{64}$

THE HART & COOLEY CO.   D-1310

The table above shows the possible height of openings only. To determine width of opening use the proper number of 4″ and 7½″ louvres and add 1″ for space between any two rows.

Suggested Grille Specifications

All Grilles shall be those manufactured by The Hart & Cooley Co., Inc., of New Britain, Conn., class No. 590 $^{.065}_{.050}$ thick (Steel, Brass, Bronze) finished in (Prime Coat, Black Japan, White Japan, Electro plated—give color—Bronze paint) per sizes shown on plans which represent the $^{opening}_{overall}$ dimensions. Margin shall be approximately—inches all around.

$^{Furnish}_{Do\ not}_{Furnish}${Grilles drilled for attaching to}$^{Woodwork}_{Marble}$ surrounding each opening
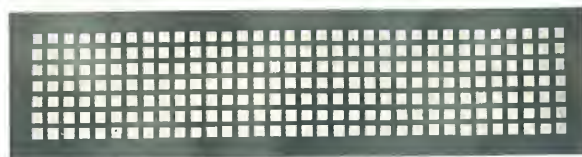
12 Overall

erall

Layout of Class #590 Grille
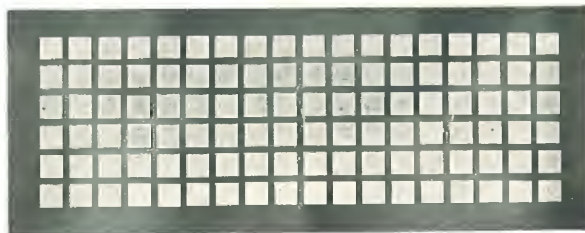*1⅟₆₄ Constant*
THE HART & COOLEY CO.
5-25-23

Three Other H & C Grilles

Class 570.   Grille

Plain lattice pattern, $\frac{1}{2}$ inch square mesh, $\frac{1}{4}$ inch bars; best adapted to narrow widths up to 12 inches overall but can be produced up to 30 inches wide, 120 inches long overall, in one piece.   Standard thickness of metal 12-gauge (.109).

Class 575.   Grille

Plain lattice pattern, $\frac{3}{4}$ inch mesh, $\frac{1}{4}$ inch bars.   Made in any size up to 50 inches wide, 120 inches long overall.   Standard thickness of metal 12-gauge (.109).

Class 576.   Grille

Plain lattice pattern, similar to No. 575 except that it is made with 1 inch mesh, $\frac{1}{4}$ inch bars and used where a large free air capacity is desired.   Made in any size up to 50 inches wide, 120 inches long overall. Standard thickness of metal 12-gauge (.109).

NOTE: The stock used for H & C Electroplated Grilles is the highest grade of cold rolled steel. (Also made of bronze or brass). They are perfectly flat, making installation very easy, and the frets line up throughout the entire length and width of the grille. *Details of our other classes of Grilles sent on request.*

H&C

WROUGHT
~ STEEL ~
RADIATOR BRACKETS
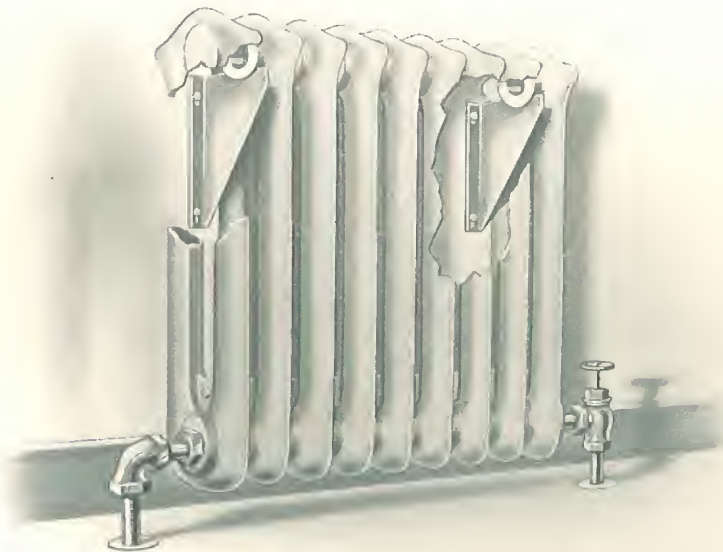
The Hart & Cooley Company, Inc.
NEW BRITAIN, CONN.

New York   Philadelphia   Chicago

STYLE - S

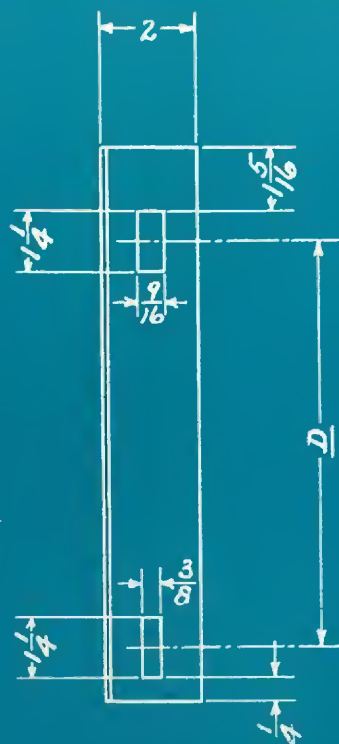|														
STYLE - S														
SIZE NO.	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5	$5\frac{1}{2}$	6	$6\frac{1}{2}$	7	$7\frac{1}{2}$	8	$8\frac{1}{2}$	9	$9\frac{1}{2}$	10
W-INCHES	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5	$5\frac{1}{2}$	6	$6\frac{1}{2}$	7	$7\frac{1}{2}$	8	$8\frac{1}{2}$	9	$9\frac{1}{2}$	10
H-INCHES	$8\frac{1}{2}$	$8\frac{1}{2}$	$8\frac{1}{2}$	$8\frac{1}{2}$	$11\frac{1}{2}$	$11\frac{1}{2}$	$11\frac{1}{2}$	$11\frac{1}{2}$	14	14	14	14	17	17	17
D-INCHES	$5\frac{11}{16}$	$5\frac{11}{16}$	$5\frac{11}{16}$	$5\frac{11}{16}$	$8\frac{11}{16}$	$8\frac{11}{16}$	$8\frac{11}{16}$	$8\frac{11}{16}$	$11\frac{3}{16}$	$11\frac{3}{16}$	$11\frac{3}{16}$	$11\frac{3}{16}$	$14\frac{3}{16}$	$14\frac{3}{16}$	$14\frac{3}{16}$
LIST PRICE	$.38	$.40	$.43	$.45	$.48	$.53	$.58	$.63	$.70	$78	$.85	$.83	$1.00	$1.08	$1.15

ALSO MADE TO SPECIFICATIONS

STYLE - R

STYLE - R														
SIZE NO.	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5	$5\frac{1}{2}$	6	$6\frac{1}{2}$	7	$7\frac{1}{2}$	8	$8\frac{1}{2}$	9	$9\frac{1}{2}$	10
W-INCHES	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5	$5\frac{1}{2}$	6	$6\frac{1}{2}$	7	$7\frac{1}{2}$	8	$8\frac{1}{2}$	9	$9\frac{1}{2}$	10
H-INCHES	$8\frac{1}{2}$	$8\frac{1}{2}$	$8\frac{1}{2}$	$8\frac{1}{2}$	$11\frac{1}{2}$	$11\frac{1}{2}$	$11\frac{1}{2}$	$11\frac{1}{2}$	14	14	14	14	17	17	17
D-INCHES	$5\frac{11}{16}$	$5\frac{11}{16}$	$5\frac{11}{16}$	$5\frac{11}{16}$	$8\frac{11}{16}$	$8\frac{11}{16}$	$8\frac{11}{16}$	$8\frac{11}{16}$	$11\frac{3}{16}$	$11\frac{3}{16}$	$11\frac{3}{16}$	$11\frac{3}{16}$	$14\frac{3}{16}$	$14\frac{3}{16}$	$14\frac{3}{16}$
LIST PRICE	$.40	$.43	$.45	$.48	$.50	$.55	$.60	$.66	$.73	$.80	$.88	$.95	1.03	1.10	1.18

ALSO MADE TO SPECIFICATIONS

✍ HART & COOLEY ✍
RADIATOR BRACKETS

The Hart & Cooley Radiator Brackets described in detail on the inside pages of this folder are commonly used to hang standard radiators on the wall in places where it is desirable to use a legless radiator. They are constructed of heavy gauge steel, are unbreakable and in all ways up to the usual high grade of Hart & Cooley wrought steel products. Made in standard listed sizes for one, two, three and four column radiators with variations to take care of slight differences in the distance between the radiator and the wall.

Special sizes can be made up to your specifications. However, unless some radical change in construction is necessary, only the distance "W" need be given us.

Discounts or net prices on special sizes on application.

In ordering standard sizes, it is necessary to state only the quantity, style and size number. For instance, 100 radiator brackets style R, size 4, will bring you 100 brackets with the round cutout centered 4" from the wall and would center your radiator 4" from the wall.

———⋙✦⋘———

Bear in mind that we are also manufacturers of a line of grilles and registers for use as radiator enclosures and in connection with all types of heating systems. If you have not received our catalog or detailed folder descriptive of this line, write our nearest office for a copy. Below are illustrated three of the many grilles shown in our other literature.

No. 578   No. 575   No. 573

H&C
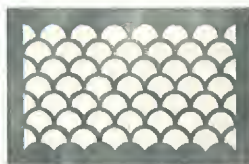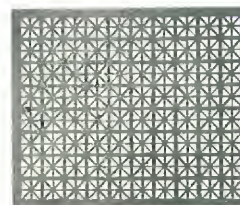
WROUGHT
STEEL
WARM AIR
REGISTERS

Showing three of the
many types made
for homes

The Hart & Cooley Company
INCORPORATED

New Britain, Conn.

New York   Philadelphia   Chicago   Boston
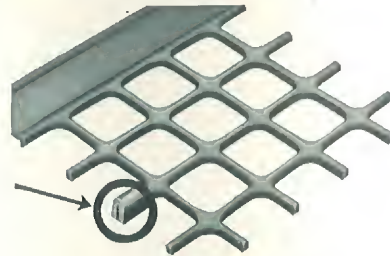
"The Air Capacity Line!"

The installation of a warm air heating system in a house may be greatly hampered or aided by the type of registers used. The main factors in the selection of registers are listed below in the order of their importance:

1 Air Capacity
2 Proper construction
3 Strength—(in case of Floor Registers)
4 Appearance

In addition to possessing Nos. 2, 3 and 4 requisites, H & C Registers have always led in Air Capacity, meaning the amount of open spaces through which air can flow freely. Recently this air capacity has been increased about 25% in H & C Floor Registers and about 40% in H & C Baseboard Registers.
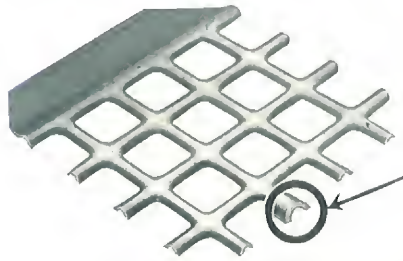
No. I. The Old Way   No. 2. The New Way

The manner in which this great increase in free air capacity has been secured is illustrated on this page. The old type arch in the fret as shown in No. 1 has been pinched together as shown in No. 2. This not only increases the air capacity but also increases the strength of the register face. This feature is patented and can be obtained only in H & C Registers.

One of the chief benefits of this increased air capacity is the fact that much smaller sizes of H & C Floor registers may be used than are commonly accepted as the proper sizes, with greater efficiency, and at a lower cost.

H & C catalog No. 24 lists all sizes of registers with *their air capacities*. When designating what size register to use, first obtain the capacity of the pipe; then select that register whose air capacity equals or is slightly in excess of the pipe capacity.

In so doing, you will use registers that deliver into the room all the warm air that can come through the pipe.

No. 255. Cold Air Face

Patented
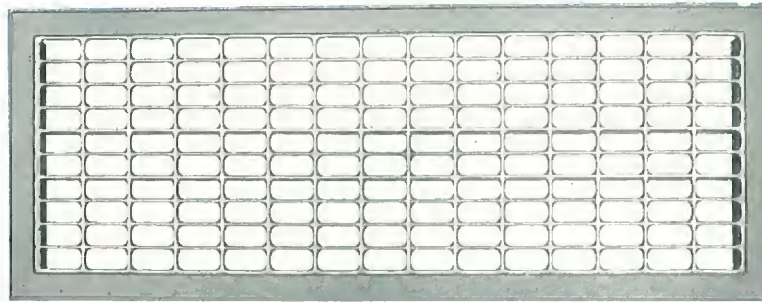
No warm air heating system is complete nor functioning properly unless means are provided for not only admitting warm air into a room, but also for taking out the cold or vitiated air. It is quite impossible to force more air into a room when it is already filled with air.

H & C Cold Air Faces, Class No. 255, serve this purpose of passing out the cold air. Being made in long narrow sizes, they can be placed close to walls without interfering with rugs or furniture.

The large air capacities as listed below, as in the case in all H & C Registers, permit the use of much smaller sizes with ample efficiency than has been possible heretofore. These cold air faces also represent a further saving in that they are easy to place, as accurate cutting of the opening is not necessary. They are well braced and may be used either in the floor or in side wall.

LIST PRICES

Sizes	Air Capacity, Square Inches	Pipe Inches	Pipe Capacity	Black Japanned	Oak Finish	Electroplated	
						*Oxidized Copper	*Nickel, Brass, Bronze
12 x 14	126	12	113	$2.50	$3.00	$4.50	$5.00
10 x 24	180	14	154	3.60	3.75	5.00	6.50
10 x 30	225	16	201	3.75	4.25	5.75	8.50
12 x 24	216	16	201	3.75	4.00	5.50	8.00
12 x 30	270	18	254	4.00	4.50	6.00	9.00
14 x 30	313	20	314	4.50	5.00	9.00	11.00
18 x 30	405	22	380	5.75	6.50	10.00	11.50
20 x 30	450	24	452	6.00	7.00	10.50	12.00

*For sand finishes, add 10 per cent to the above prices.

No. 200.   Floor Register
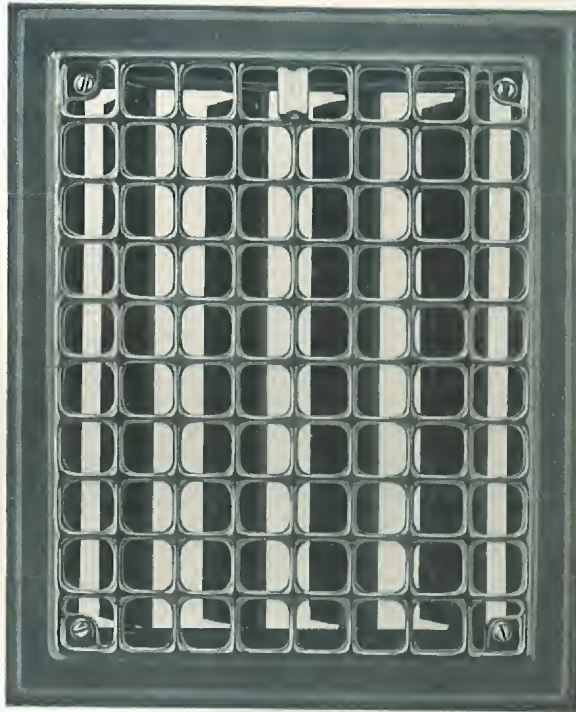
No. 200

H & C Floor Registers, Class No. 200, are correctly designed to provide a strong, unbreakable protection for openings through the floor to furnace pipe.

The faces are reinforced by supporting bars of heavy gauge steel.

The steel used in H & C Register bodies is also of heavy gauge to make them rigid and durable. The louvres or valves have solid trunnions securely riveted to each end, insuring free and easy operation.

H & C Floor registers are made in all standard finishes.

The square hole design is furnished in all sizes up to and including 14 inch widths. Larger sizes have oblong holes.

Showing end of register box or body and heavy braces

"H & C" Wrought Steel Floor Registers
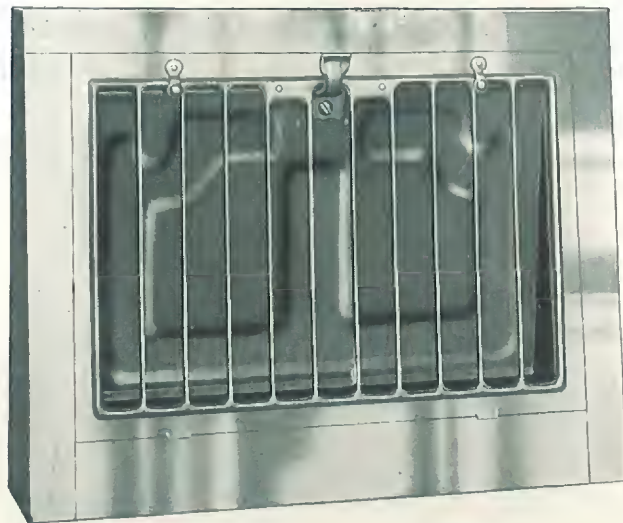
DIMENSIONS OF LEADING SIZES

Corresponding in Size with the Standard Cast Iron Makes

Sizes 4 x 6 to 14 x 22 inclusive have a uniform depth open of $2\frac{5}{16}$ in., closed $1\frac{1}{2}$ in.

Sizes 16 x 16 to 30 x 42 inclusive have a uniform depth open of 5 in., closed 3 in.

Size of Body	Air Capacity Sq. In.	Extreme Size of Register Face
4 x 6	16	$5\frac{1}{4} \times 7\frac{1}{4}$
4 x 8	22	$5\frac{1}{4} \times 9\frac{1}{4}$
4 x 10	27	$5\frac{1}{4} \times 11\frac{1}{4}$
4 x 12	33	$5\frac{1}{4} \times 13\frac{1}{4}$
4 x 15	41	$5\frac{1}{4} \times 16\frac{1}{4}$
4 x 18	49	$5\frac{1}{4} \times 19\frac{1}{4}$
5 x 8	27	$6\frac{5}{16} \times 9\frac{5}{16}$
5 x 9	31	$6\frac{5}{16} \times 10\frac{5}{16}$
5 x 10	34	$6\frac{5}{16} \times 11\frac{5}{16}$
5 x 12	41	$6\frac{5}{16} \times 13\frac{5}{16}$
5 x 13	44	$6\frac{5}{16} \times 14\frac{5}{16}$
5 x 14	47	$6\frac{5}{16} \times 15\frac{5}{16}$
5 x 15	51	$6\frac{5}{16} \times 16\frac{5}{16}$
5 x 16	54	$6\frac{5}{16} \times 17\frac{5}{16}$
5 x 18	61	$6\frac{5}{16} \times 19\frac{5}{16}$
6 x 6	25	$7\frac{11}{16} \times 7\frac{11}{16}$
6 x 8	33	$7\frac{11}{16} \times 9\frac{11}{16}$
6 x 9	37	$7\frac{11}{16} \times 10\frac{11}{16}$
6 x 10	41	$7\frac{11}{16} \times 11\frac{11}{16}$
6 x 12	50	$7\frac{11}{16} \times 13\frac{11}{16}$
6 x 14	58	$7\frac{11}{16} \times 15\frac{11}{16}$
6 x 16	66	$7\frac{11}{16} \times 17\frac{11}{16}$
6 x 18	74	$7\frac{11}{16} \times 19\frac{11}{16}$
6 x 20	83	$7\frac{11}{16} \times 21\frac{11}{16}$
6 x 24	100	$7\frac{11}{16} \times 25\frac{11}{16}$
6 x 30	124	$7\frac{11}{16} \times 31\frac{5}{8}$
7 x 7	34	$8\frac{11}{16} \times 8\frac{11}{16}$
7 x 9	44	$8\frac{11}{16} \times 10\frac{11}{16}$
7 x 10	49	$8\frac{11}{16} \times 11\frac{11}{16}$
7 x 12	58	$8\frac{11}{16} \times 13\frac{11}{16}$
8 x 8	45	$9\frac{3}{4} \times 9\frac{3}{4}$
8 x 10	56	$9\frac{3}{4} \times 11\frac{3}{4}$
8 x 12	67	$9\frac{3}{4} \times 13\frac{3}{4}$
8 x 14	78	$9\frac{3}{4} \times 15\frac{11}{16}$
8 x 15	84	$9\frac{3}{4} \times 16\frac{11}{16}$
8 x 16	90	$9\frac{3}{4} \times 17\frac{11}{16}$
8 x 18	100	$9\frac{3}{4} \times 19\frac{3}{4}$
8 x 20	112	$9\frac{3}{4} \times 21\frac{3}{4}$
8 x 24	135	$9\frac{3}{4} \times 25\frac{3}{4}$
8 x 30	168	$9\frac{3}{4} \times 31\frac{11}{16}$
8 x 36	200	$9\frac{3}{4} \times 38$
9 x 9	56	$10\frac{7}{8} \times 10\frac{7}{8}$
9 x 12	75	$10\frac{7}{8} \times 13\frac{7}{8}$
9 x 14	88	$10\frac{7}{8} \times 15\frac{7}{8}$
9 x 20	126	$10\frac{7}{8} \times 21\frac{7}{8}$
9 x 22	138	$10\frac{7}{8} \times 23\frac{7}{8}$
9 x 24	151	$10\frac{7}{8} \times 25\frac{7}{8}$
9 x 30	189	$10\frac{7}{8} \times 31\frac{13}{16}$
9 x 32	201	$10\frac{7}{8} \times 34$
9 x 36	227	$10\frac{7}{8} \times 38$
10 x 10	70	$11\frac{15}{16} \times 11\frac{15}{16}$
10 x 12	84	$11\frac{15}{16} \times 13\frac{15}{16}$
10 x 14	98	$11\frac{15}{16} \times 15\frac{7}{8}$
10 x 15	105	$11\frac{15}{16} \times 16\frac{15}{16}$
10 x 16	112	$11\frac{15}{16} \times 17\frac{7}{8}$
10 x 18	126	$11\frac{15}{16} \times 19\frac{7}{8}$
10 x 20	140	$11\frac{15}{16} \times 21\frac{7}{8}$
10 x 22	154	$11\frac{15}{16} \times 23\frac{7}{8}$
10 x 24	168	$11\frac{15}{16} \times 25\frac{7}{8}$
10 x 30	210	$11\frac{15}{16} \times 31\frac{7}{8}$
10 x 36	252	$11\frac{15}{16} \times 38$
10 x 40	280	$11\frac{15}{16} \times 42$
12 x 12	101	$14\frac{1}{16} \times 17\frac{1}{16}$
12 x 14	118	$14\frac{1}{16} \times 16\frac{1}{16}$
12 x 15	126	$14\frac{1}{16} \times 17$
12 x 16	134	$14\frac{1}{16} \times 18$
12 x 17	143	$14\frac{1}{16} \times 19$
12 x 18	151	$14\frac{1}{16} \times 20$
12 x 19	160	$14\frac{1}{16} \times 21$
12 x 20	168	$14\frac{1}{16} \times 22$
12 x 22	185	$14\frac{1}{16} \times 24$
12 x 24	202	$14\frac{1}{16} \times 26$
12 x 30	252	$14\frac{1}{16} \times 32$
12 x 36	302	$14\frac{1}{16} \times 38$
12 x 40	336	$14\frac{1}{16} \times 42$
12 x 48	403	$14\frac{1}{16} \times 50\frac{3}{16}$
14 x 14	137	$16\frac{1}{4} \times 16\frac{1}{4}$
14 x 16	157	$16\frac{1}{4} \times 18\frac{5}{16}$
14 x 18	176	$16\frac{1}{4} \times 20\frac{5}{16}$
14 x 20	196	$16\frac{1}{4} \times 22\frac{5}{16}$
14 x 22	216	$16\frac{1}{4} \times 24\frac{1}{4}$
14 x 24	235	$16\frac{1}{4} \times 26\frac{1}{4}$
14 x 30	294	$16\frac{1}{4} \times 32\frac{5}{16}$
14 x 36	352	$16\frac{1}{4} \times 38\frac{5}{16}$
14 x 40	392	$16\frac{1}{4} \times 42$
14 x 48	470	$16\frac{1}{4} \times 50\frac{3}{16}$
16 x 16	190	$18\frac{5}{16} \times 18\frac{5}{16}$
16 x 18	213	$18\frac{5}{16} \times 20\frac{5}{16}$
16 x 20	237	$18\frac{5}{16} \times 22\frac{5}{16}$
16 x 22	260	$18\frac{5}{16} \times 24\frac{5}{16}$
16 x 24	284	$18\frac{5}{16} \times 26\frac{5}{16}$
16 x 28	332	$18\frac{5}{16} \times 30\frac{5}{16}$
16 x 30	355	$18\frac{5}{16} \times 32\frac{5}{16}$
16 x 32	379	$18\frac{5}{16} \times 34\frac{5}{16}$
16 x 36	426	$18\frac{5}{16} \times 38\frac{5}{16}$
16 x 42	498	$18\frac{5}{16} \times 44\frac{3}{8}$
18 x 18	240	$20\frac{5}{16} \times 20\frac{5}{16}$
18 x 20	267	$20\frac{5}{16} \times 22\frac{5}{16}$
18 x 21	279	$20\frac{5}{16} \times 23\frac{5}{16}$
18 x 22	293	$20\frac{5}{16} \times 24\frac{5}{16}$
18 x 24	319	$20\frac{5}{16} \times 26\frac{5}{16}$
18 x 27	360	$20\frac{5}{16} \times 29\frac{5}{16}$
18 x 28	372	$20\frac{5}{16} \times 30\frac{5}{16}$
18 x 30	400	$20\frac{5}{16} \times 32\frac{1}{4}$
18 x 36	480	$20\frac{5}{16} \times 38\frac{1}{4}$
20 x 20	296	$22\frac{3}{8} \times 22\frac{3}{8}$
20 x 22	326	$22\frac{3}{8} \times 24\frac{3}{8}$
20 x 24	355	$22\frac{3}{8} \times 26\frac{3}{8}$
20 x 26	385	$22\frac{3}{8} \times 28\frac{3}{8}$
20 x 28	415	$22\frac{3}{8} \times 30\frac{3}{8}$
20 x 30	445	$22\frac{3}{8} \times 32\frac{3}{8}$
20 x 32	474	$22\frac{3}{8} \times 34\frac{3}{8}$
20 x 36	534	$22\frac{3}{8} \times 38\frac{3}{8}$
22 x 22	358	$24\frac{3}{8} \times 24\frac{3}{8}$
22 x 24	390	$24\frac{3}{8} \times 26\frac{3}{8}$
22 x 26	424	$24\frac{3}{8} \times 28\frac{3}{8}$
22 x 28	455	$24\frac{3}{8} \times 30\frac{3}{8}$
22 x 30	489	$24\frac{3}{8} \times 32\frac{3}{8}$
22 x 32	520	$24\frac{3}{8} \times 34\frac{3}{8}$
22 x 36	585	$24\frac{3}{8} \times 38\frac{3}{8}$
22 x 38	618	$24\frac{3}{8} \times 40\frac{3}{8}$
22 x 40	650	$24\frac{3}{8} \times 42\frac{3}{8}$
22 x 42	684	$24\frac{3}{8} \times 44\frac{3}{8}$
24 x 24	426	$26\frac{3}{8} \times 26\frac{3}{8}$
24 x 26	461	$26\frac{3}{8} \times 28\frac{3}{8}$
24 x 27	479	$26\frac{3}{8} \times 29\frac{3}{8}$
24 x 30	532	$26\frac{3}{8} \times 32\frac{3}{8}$
24 x 32	569	$26\frac{3}{8} \times 34\frac{3}{8}$
24 x 36	640	$26\frac{3}{8} \times 38\frac{3}{8}$
24 x 40	710	$26\frac{3}{8} \times 42\frac{3}{8}$
24 x 42	745	$26\frac{3}{8} \times 44\frac{3}{8}$
24 x 45	800	$26\frac{3}{8} \times 47\frac{3}{8}$
24 x 48	850	$26\frac{3}{8} \times 50\frac{3}{8}$
26 x 26	500	$28\frac{3}{8} \times 28\frac{3}{8}$
26 x 28	539	$28\frac{3}{8} \times 30\frac{3}{8}$
26 x 30	578	$28\frac{3}{8} \times 32\frac{3}{8}$
26 x 32	615	$28\frac{3}{8} \times 34\frac{3}{8}$
26 x 34	655	$28\frac{3}{8} \times 36\frac{3}{8}$
26 x 36	694	$28\frac{3}{8} \times 38\frac{3}{8}$
28 x 28	589	$30\frac{3}{8} \times 30\frac{3}{8}$
28 x 30	630	$30\frac{3}{8} \times 32\frac{3}{8}$
28 x 32	672	$30\frac{3}{8} \times 34\frac{3}{8}$
28 x 34	715	$30\frac{3}{8} \times 36\frac{3}{8}$
28 x 36	756	$30\frac{3}{8} \times 38\frac{3}{8}$
28 x 40	840	$30\frac{3}{8} \times 42\frac{3}{8}$
30 x 30	674	$32\frac{3}{8} \times 32\frac{3}{8}$
30 x 32	720	$32\frac{3}{8} \times 34\frac{3}{8}$
30 x 34	765	$32\frac{3}{8} \times 36\frac{3}{8}$
30 x 36	809	$32\frac{3}{8} \times 38\frac{3}{8}$
30 x 40	898	$32\frac{3}{8} \times 42\frac{3}{8}$
30 x 42	944	$32\frac{3}{8} \times 44\frac{3}{8}$
30 x 48	1080	$32\frac{3}{8} \times 50\frac{3}{8}$
36 x 36	970	$38\frac{3}{8} \times 38\frac{3}{8}$
36 x 40	1080	$38\frac{3}{8} \times 42\frac{3}{8}$
36 x 42	1135	$38\frac{3}{8} \times 44\frac{3}{8}$
36 x 48	1295	$38\frac{3}{8} \times 50\frac{3}{8}$
38 x 42	1200	$40\frac{3}{8} \times 44\frac{3}{8}$

No. 170 Baseboard Register

In the baseboard line of Registers, H & C has improved the free air area nearly 40% without impairment of the guard or protection to flue. The vertical bars as illustrated are integral with margin of register face, formed double thickness and sufficiently deep to afford more than adequate strength. The result is that an H & C 8 x 12 Register 173¼ has 81 square inches of free area for 10″ pipe of 78 square inches area and the projection at base is ample to allow use of boot with throat area equal to pipe area. The nearest approach to this register in the old type is 10 x 12 with 70 square inches of free area or 8 square inches less than area of pipe. The list prices show a cost of an H & C 8 x 12 to be 3¾c. per sq. in. of free area against 5¾c. for 10 x 12 of old type. Other sizes show equal efficiency and saving in cost.
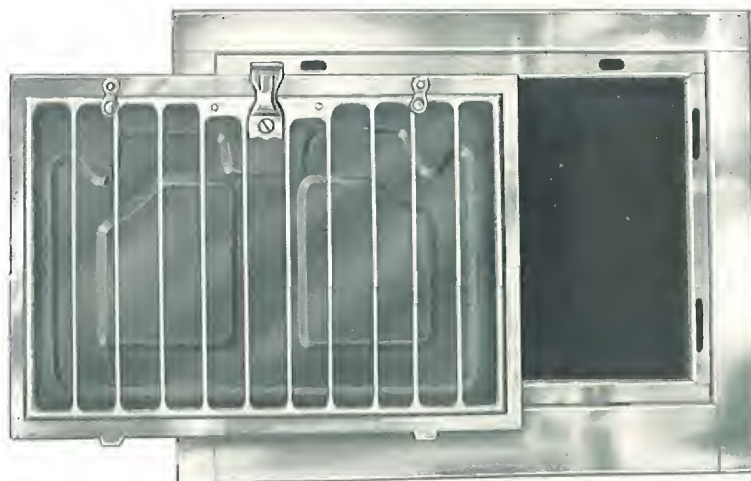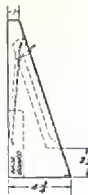
List Prices

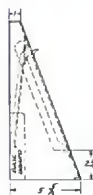## CLASS 171¼

Size	Free Air Capacity Face Sq. In.	Black Japanned	White Japanned	Electroplated		Number in Case	Gross Weight Pounds
				*Oxidized Copper	*Brass, Bronze Nickel		
8 x 10	66	$2.00	$2.35	$3.50	$3.85	24	110
8 x 12	81	2.40	2.90	3.95	4.35	24	115
9 x 12	92	2.50	3.00	4.00	4.40	24	125

CLASS 172¼

Size	Free Air Capacity Face Sq. In.	Black Japanned	White Japanned	Electroplated		Number in Case	Gross Weight Pounds
				*Oxidized Copper	*Brass, Bronze Nickel		
8 x 10	66	$2.00	$2.35	$3.50	$3.85	20	95
8 x 12	81	2.40	2.90	3.95	4.35	20	105
9 x 12	92	3.00	3.50	4.50	4.90	20	110

CLASS 173¼

Size	Free Air Capacity Face Sq. In.	Black Japanned	White Japanned	Electroplated		Number in Case	Gross Weight Pounds
				*Oxidized Copper	*Brass, Bronze Nickel		
8 x 12	81	$3.00	$3.50	$4.50	$4.90	16	90
10 x 12	102	4.00	4.60	5.75	6.35	18	110
10 x 13	110	4.20	5.00	6.20	7.00	16	105
11 x 13	127	4.50	5.25	6.75	7.50	16	100

CLASS 174¾

Size	Free Air Capacity Face Sq. In.	Black Japanned	White Japanned	Electroplated		Number in Case	Gross Weight Pounds
				*Oxidized Copper	*Brass, Bronze Nickel		
10 x 13	110	$4.85	$5.50	$7.00	$8.00	18	110

CLASS 175¼

Size	Free Air Capacity Face Sq. In.	Black Japanned	White Japanned	Electroplated		Number in Case	Gross Weight Pounds
				*Oxidized Copper	*Brass, Bronze Nickel		
11 x 13	127	$5.25	$6.00	$7.50	$8.25	16	115
12 x 14	149	6.50	7.50	8.50	9.50	14	110

CLASS 177½

Size	Free Air Capacity Face Sq. In.	Black Japanned	White Japanned	Electroplated		Number in Case	Gross Weight Pounds
				*Oxidized Copper	*Brass, Bronze Nickel		
12 x 14	149	$9.00	$10.00	$12.00	$12.50	8	95

*For sand finishes, add 10 per cent to the above prices.

H&C

It is impossible to go into the detail of all sizes and kinds of H & C Registers with description of all varieties of finishes, but the H & C line which has been on the market for twenty-five years, is complete, and detailed information will be found in our catalog No. 24. For information regarding registers to be used in connection with forced draught systems in schools, theatres and other large buildings, write us for further details. The recent improvements by H & C in increasing free air capacity—so vital to warm air heating where circulation depends on gravity and easy movement of air—warrant our calling your attention to the facts herein, with the belief that you will specify H & C Registers in all warm air heating installations.

We suggest that you include in your specifications: All Registers and Intakes shall have free area equal to pipe area, and manufacturers' catalogs or quotations must show free area of Register faces expressed in square inches (not in percentage).

H&C

WROUGHT ~ STEEL ~ GRILLES
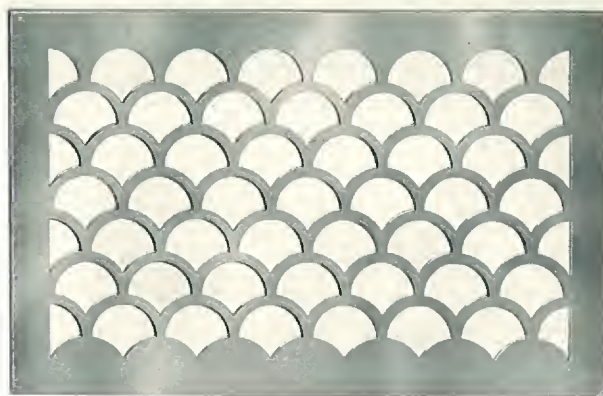
Number 578

(Folder No. 5 of a Series)
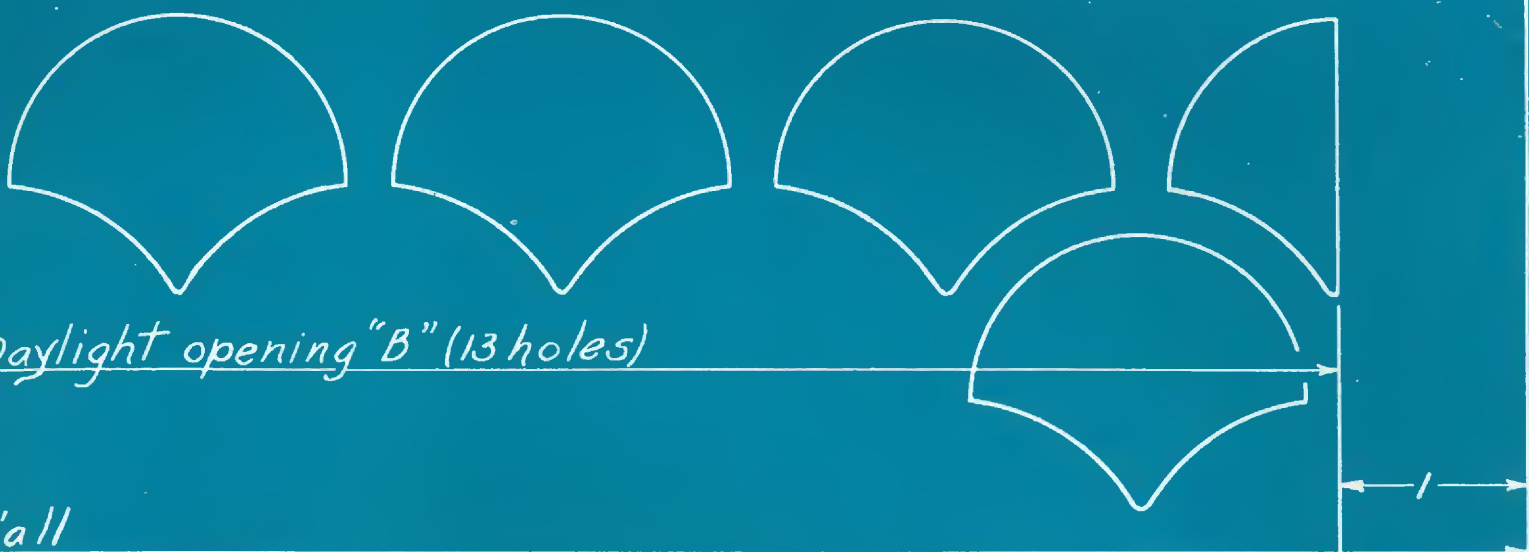
The Hart & Cooley Company

New Britain, Conn.

New York   Philadelphia   Chicago   Boston

$\frac{7}{8}$ Rad.

$\frac{9}{16}$

$\frac{1}{4}$

1 1 1

1

14 0

16 0

1 $\frac{1}{8}$

1 $\frac{1}{8}$

Daylight opening "A" (7 holes)

8 $\frac{3}{16}$

10 $\frac{3}{16}$ o'all

Opening "A"			
1	1 $\frac{7}{16}$"	23	26 $\frac{3}{16}$"
3	3 $\frac{11}{16}$"	25	28 $\frac{7}{16}$"
5	5 $\frac{15}{16}$"	27	30 $\frac{11}{16}$"
7	8 $\frac{3}{16}$"	29	32 $\frac{15}{16}$"
9	10 $\frac{7}{16}$"	31	35 $\frac{3}{16}$"
11	12 $\frac{11}{16}$"	33	37 $\frac{7}{16}$"
13	14 $\frac{15}{16}$"	35	39 $\frac{11}{16}$"
15	17 $\frac{3}{16}$"	37	41 $\frac{15}{16}$"
17	19 $\frac{7}{16}$"	39	44 $\frac{3}{16}$"
19	21 $\frac{7}{16}$"	41	46 $\frac{7}{16}$"
21	23 $\frac{15}{16}$"	43	48 $\frac{11}{16}$"
Max. H'g't			

Daylight opening "B" (13 holes)

'all
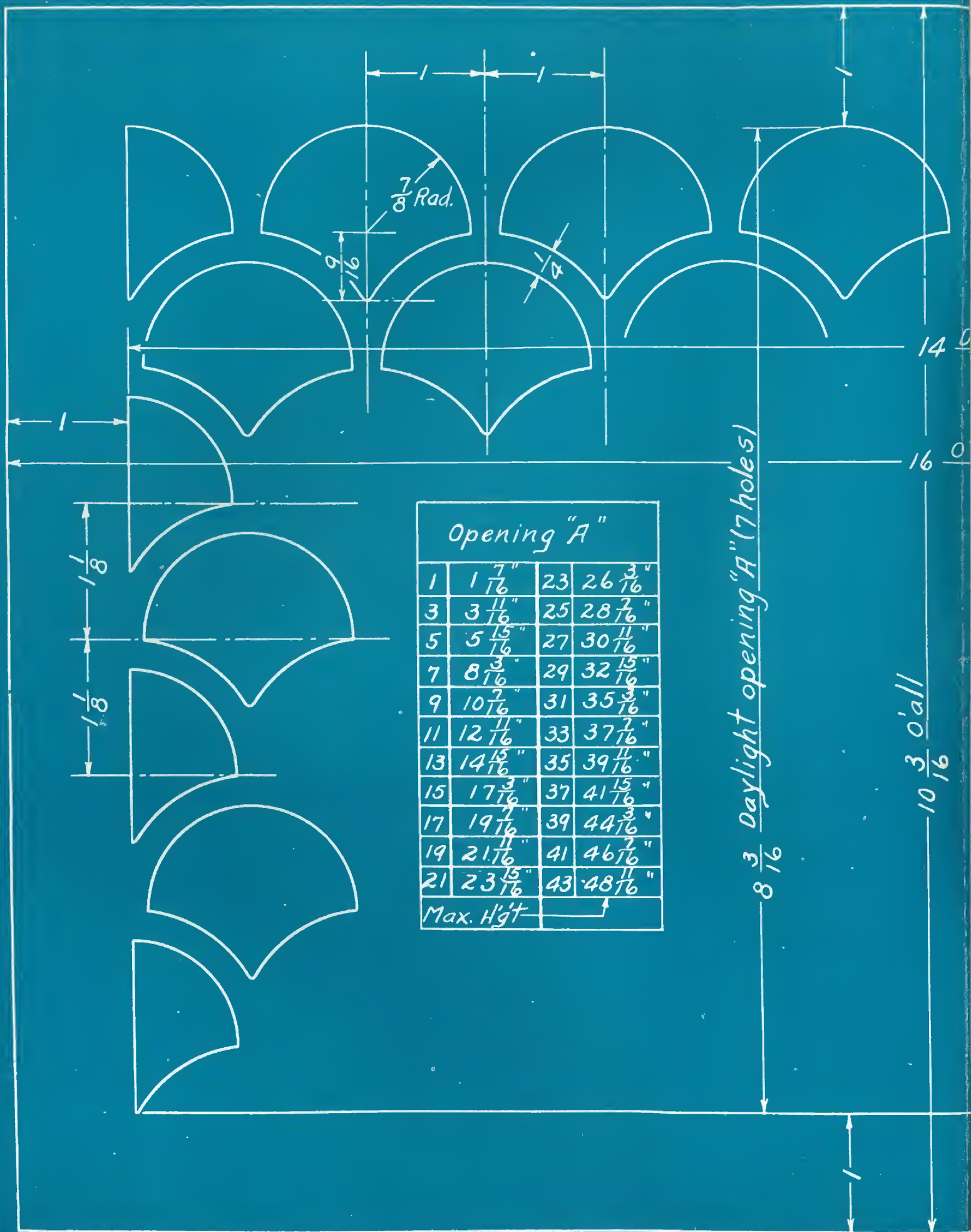
Opening "B"

1	2"	25	26"	49	50"	73	74"	97	98"
3	4"	27	28"	51	52"	75	76"	99	100"
5	6"	29	30"	53	54"	77	78"	101	102"
7	8"	31	32"	55	56"	79	80"	103	104"
9	10"	33	34"	57	58"	81	82"	105	106"
11	12"	35	36"	59	60"	83	84"	107	108"
13	14"	37	38"	61	62"	85	86"	109	110"
15	16"	39	40"	63	64"	87	88"	111	112"
17	18"	41	42"	65	66"	89	90"	113	114"
19	20"	43	44"	67	68"	91	92"	115	116"
21	22"	45	46"	69	70"	93	94"	117	118"
23	24"	47	48"	71	72"	95	96"	—	—

Layout of class #578 Grille

THE HART & COOLEY CO.

Scale Full Size ℗ 4-9-24

H&C

Suggested Specifications

TO OBTAIN the best results we suggest that architects and engineers arrange the duct opening in which they wish to use our Class No. 578 Grilles to conform with the possible opening sizes shown under the headings "A" and "B". (Note that Table "A" shows possible heights, Table "B" widths). If this procedure is followed we can make the daylight opening the same size as duct opening and provide an even margin all around. Then specify as follows:

"All Grilles shall be Class No. 578 manufactured by the Hart & Cooley Company, Inc., of New Britain, Conn., made from (109-.134) thick (Steel, Brass, Bronze); finished in (Prime Coat, Black Japan, White Japan, Electroplated—give color—Bronze Paint); per sizes shown on plans which represent the (opening-overall) dimensions. Margins shall be approximately   inches all around. The circles which form this design shall be based on a $\frac{7}{8}''$ radius only."

♄

Grille Folder No. 6

Will be of especial interest to all architects, engineers and others who are designing radiator enclosures. It will give a summary of the experience of the best engineering practice together with our experience along these lines.

H&C

WROUGHT GRILLES

Worked in Bronze, Brass or Steel *for*

Radiator Enclosures

(Folder No. 6 of a Series)

The Hart & Cooley Company

INCORPORATED

New Britain, Conn.

New York   Philadelphia   Chicago   Boston

Enclosed Radiator Type A
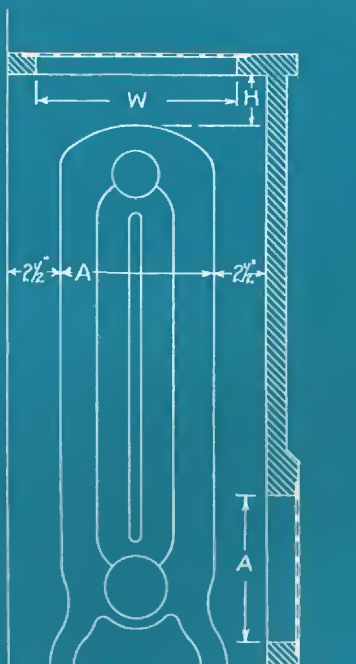
SYMBOLS

A   Width of Radiator and height of inlet opening. Inlet opening should never be less than width of radiator enclosed.

W   Outlet opening. These openings should never be less than A plus 2 inches.

H   Distance from radiator to top of enclosure. Note that this should never be less than 2½ inches and that increasing this dimension increases the efficiency of the radiator.

In planning radiator enclosures of this type, be sure that length of both top and bottom grille is at least the full length of radiator enclosed.

This detail shows the adaptation of H & C Grille Class No. 575 to this type of enclosure. (Increase radiation 25% to offset enclosure.)
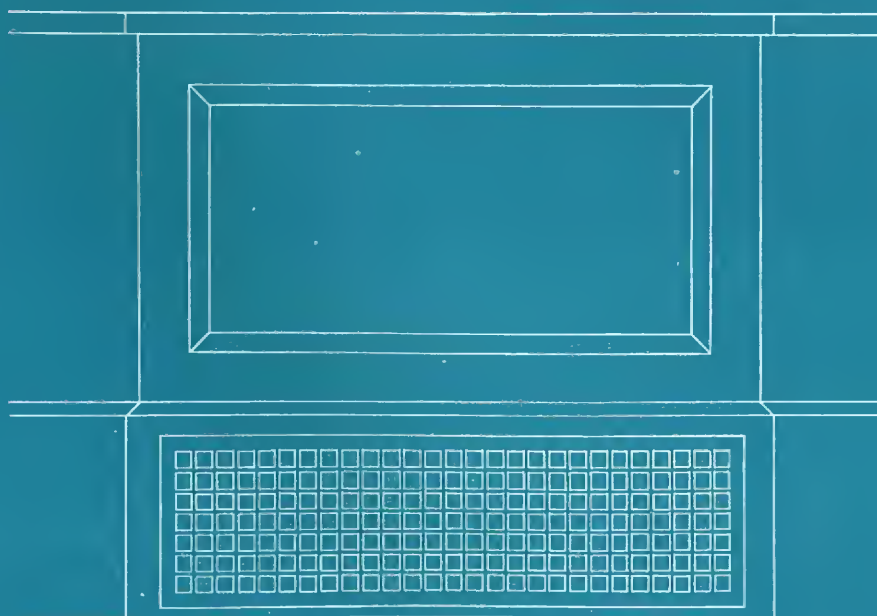
Recessed Radiator Type B
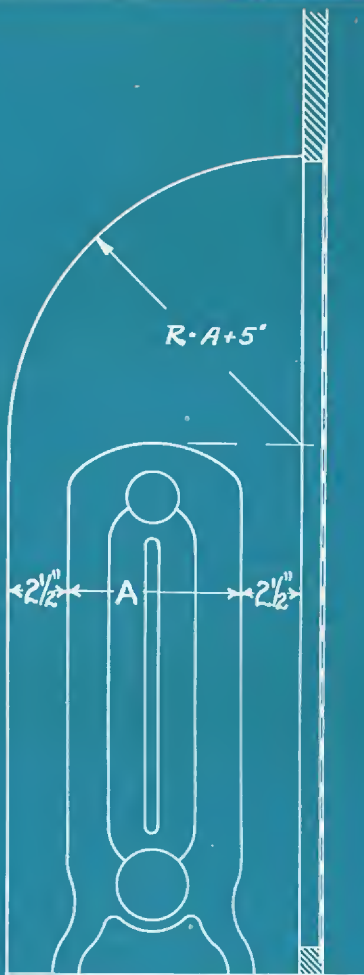
SYMBOLS

A Is width of Radiator
R Is radius of deflector which
   equals A plus 5 inches

The height of the grille should equal height of radiator plus width of radiator plus 5 inches.

The length of the grille should never be less than the length of the radiator.

This detail shows the adaptation of H & C Grilles Class No. 573 to this type of enclosure. (Increase the radiation 25% to offset enclosure.)

R·A+5″

2½″ A 2½″
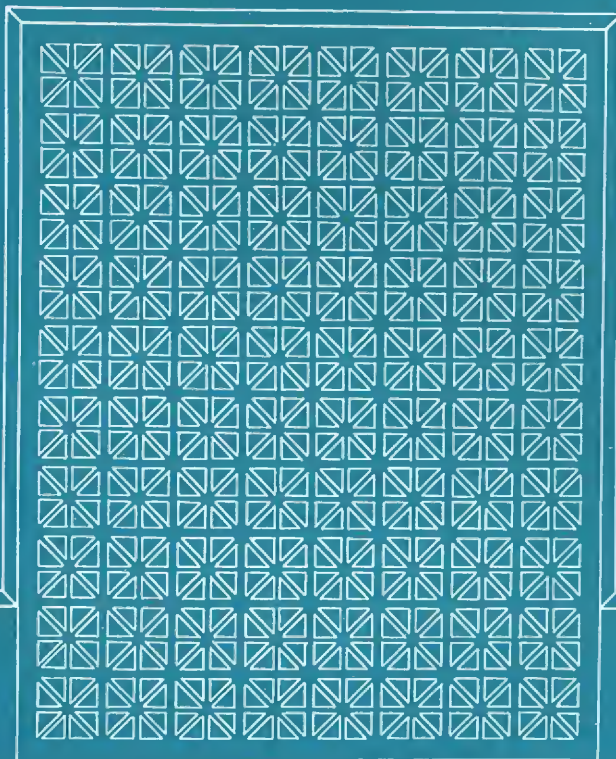
Enclosed Radiator Type C

SYMBOLS

A Is width of radiator.

W Is width of outlet on top opening. This should always equal **A** plus 2 inches.

H Is distance from top of radiator to top of enclosure. This should never be less than 2⅝ inches. Increasing this dimension increases the efficiency of the radiator.

Height of front grille should equal height of radiator. Length of front grille should never be less than length of radiator.

This detail shows the adaptation of H & C Class 578 to this type of enclosure. (Increase radiation 25% to offset enclosure.)
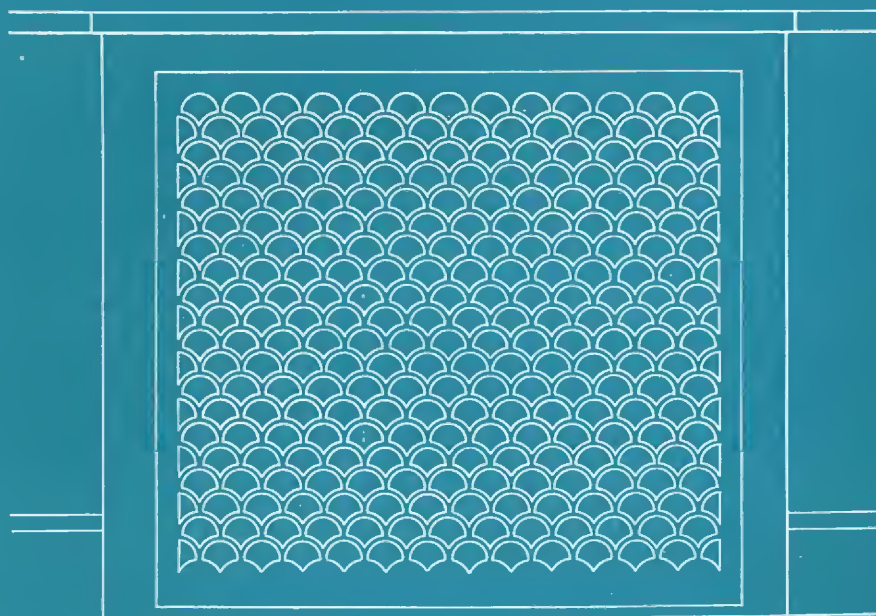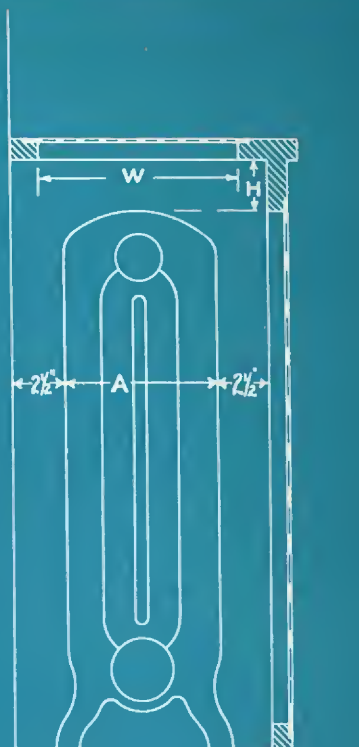
The purpose of this folder is to give some exact data on enclosing radiators.

Owners of both public buildings and homes in increasing numbers are insisting, not only that the radiator be enclosed, but that it be enclosed in an attractive manner without decreasing the efficiency of the heating plant.

The information given on the three details in this folder is the result of considerable research work and experience on the part of engineers and architects who have studied the problem from every angle, checked against our own wide experience in this work.

In the past, the use of special grilles made especially for each job by casting has made the cost almost prohibitive. By the use of H & C Grilles this excessive cost is eliminated while giving a most attractive and efficient enclosure.

All H & C Grilles shown in our catalog number 24 and in our Architectural Folder Number 5, may be used for the types of enclosures shown, except Grilles class numbers, 590-550 and 555.

The three types of enclosures shown represent those in general use and will fill the need in a very large percentage of cases. There are times when variations of these types are advisable. When such a condition exists our engineering department will gladly aid you with sketches and suggestions.

When enclosing radiators, bear in mind the fact that the efficiency of the radiator always depends on the freedom with which the air circulates.

H & C Grilles offer a minimum of resistance to air currents and may be had in a variety of designs and of dimensions unlimited by stock patterns.

As an additional feature, H & C Grilles for radiator enclosures may be had with our "invisible door" or opening which gives access to the radiator control valve without unsightly doors or interrupting the design of the grille. The standard size of these doors are 6″ x 6″ and 4″ x 5″ approximately, depending on the grille design.

Suggested Specifications

All radiator enclosures in this building shall be those designated by the Hart & Cooley Company, Inc., of New Britain, Conn., as type (A, B or C) made from H & C Grilles Class No.—(specify class No. as shown in our catalog No. 24) of (12 gauge-.109 or 10 gauge-.134) thick,—(Steel, Brass or Bronze) finished in (Prime Coat, Black Japan, White Japan, Electro - plated — give color—Bronze paint) as per dimensions shown on plans.

All grilles covering openings in enclosures when delivered on the job, shall be flat and all fretwork shall line up through the length and width of each grille.

H&C

WROUGHT GRILLES

Installation Methods

This bulletin contains examples of the best methods of installing grilles under conditions most commonly encountered.

(Folder No. 8 of a Series)

The Hart & Cooley Mfg. Co.

New Britain, Conn.

New York   Philadelphia   Chicago
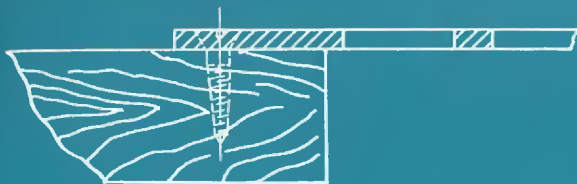
Method No. 1

Method Number One

This is the simplest form of attaching grilles to an opening. With this method the overall size of the grille need not be exact. It is customary to measure the opening and allow one inch all around for overlap. In order to avoid buckle, in installing a grille by this method, place the center screws first, leaving the corner screws until the last.
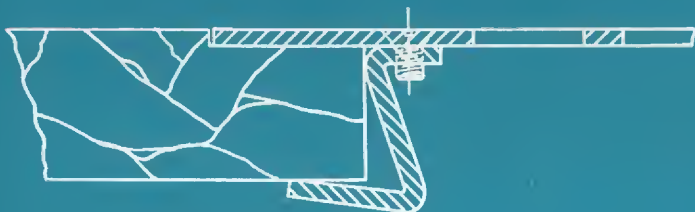
Method No. 2

Method Number Two

This method of attaching is especially desirable for use with marble. It makes it possible to attach a steel or bronze grille to a marble opening without drilling or injuring the marble in any way. Overall sizes must be given exact allowing approximately $\frac{1}{16}''$ on each dimension for clearance.

For No. 12 gauge metal (.109 thick) make the rabbet $\frac{1}{8}''$.

For No. 10 gauge metal (.134 thick) make the rabbet $\frac{3}{16}''$ deep.
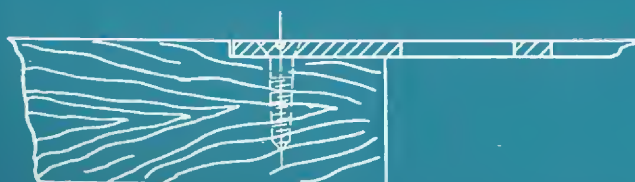
Method No. 3

Method Number Three

Similar to Method No. 2 except that the rabbet is made in the wood and grilles are screwed to woodwork directly from the top.

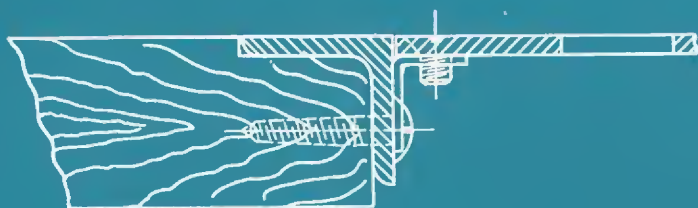For No. 12 gauge metal (.109) thick make the rabbet $\frac{1}{8}''$.

For No. 10 gauge metal (.134 thick) make the rabbet $\frac{3}{16}''$ deep.
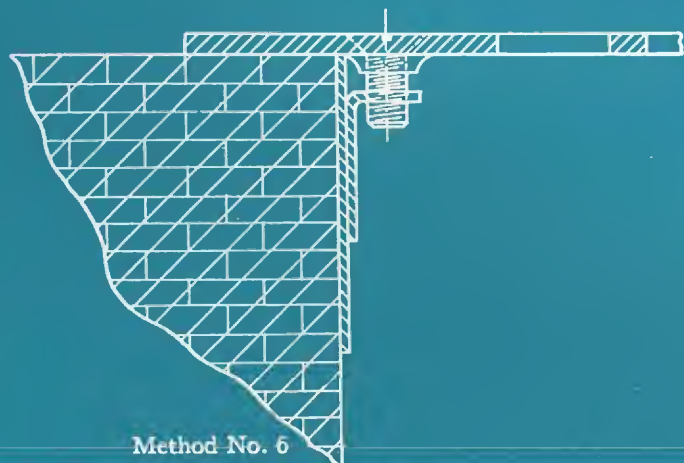
Method Number Four

This method shows a grille hinged to an outside angle frame. The frame is attached by means of screws through the face of the angle to a wood ground. If desired, screw holes may be left out of the face of the angle and grille attached by means of screws through the inside leg to the same wood ground. This type of frame is used largely in front of radiators to allow easy access for cleaning purposes and also to valves. This same frame can be furnished with lock in place of spring catch.
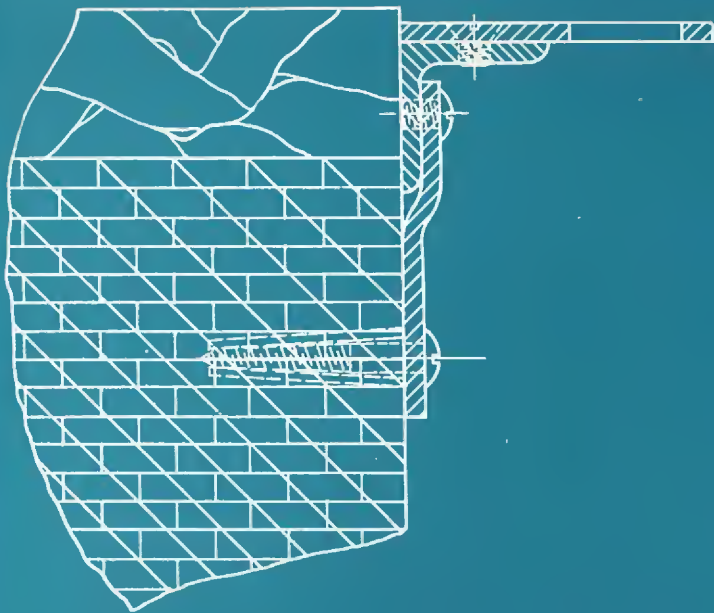
Method No. 4

Method Number Five

This detail shows a grille screwed to an outside angle frame with frame attached to surrounding woodwork by means of screws through the inside leg. This method is used where it is desirable to secure access to the radiator for cleaning purposes only or where it is not necessary to remove the grille except occasionally.
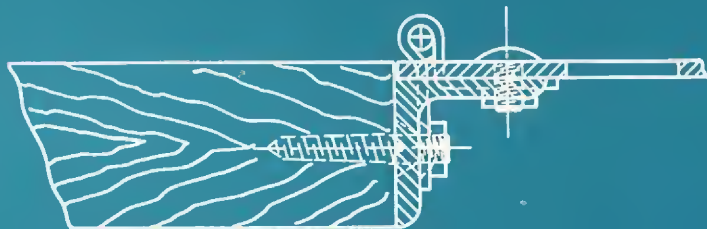
Method No. 5

Method Number Six

This method shows grille attached by screws to a band iron frame. The screw holes are placed in grille corners which are left blank. This makes it possible to remove grille without disturbing band iron frame which can be attached permanently to a sheet metal duct.

Method No. 6

Method Number Seven

This construction is used largely in places where it is desired to set a grille in marble without injuring or drilling same. The grille is screwed to an inside angle frame and clips provided so that it may be anchored to the brick or terra-cotta behind the marble. The grille is usually set slightly below the surface of the marble so that inaccuracies in the marble will not readily show.

Method No. 7

Method Number Eight

Grilles hinged to inside angle frame. Frame is attached by means of screws through the inside leg of the angle to the surrounding woodwork. This provides easy access to radiator or duct beyond.

Method No. 8

Method Number Nine

This method is used to prevent chipping of plaster where it is desirable to have plaster come up to the edge of grille. A band frame is provided all around the grille. This frame can be set in place permanently and grille removed without interfering with the plaster.

Method No. 9
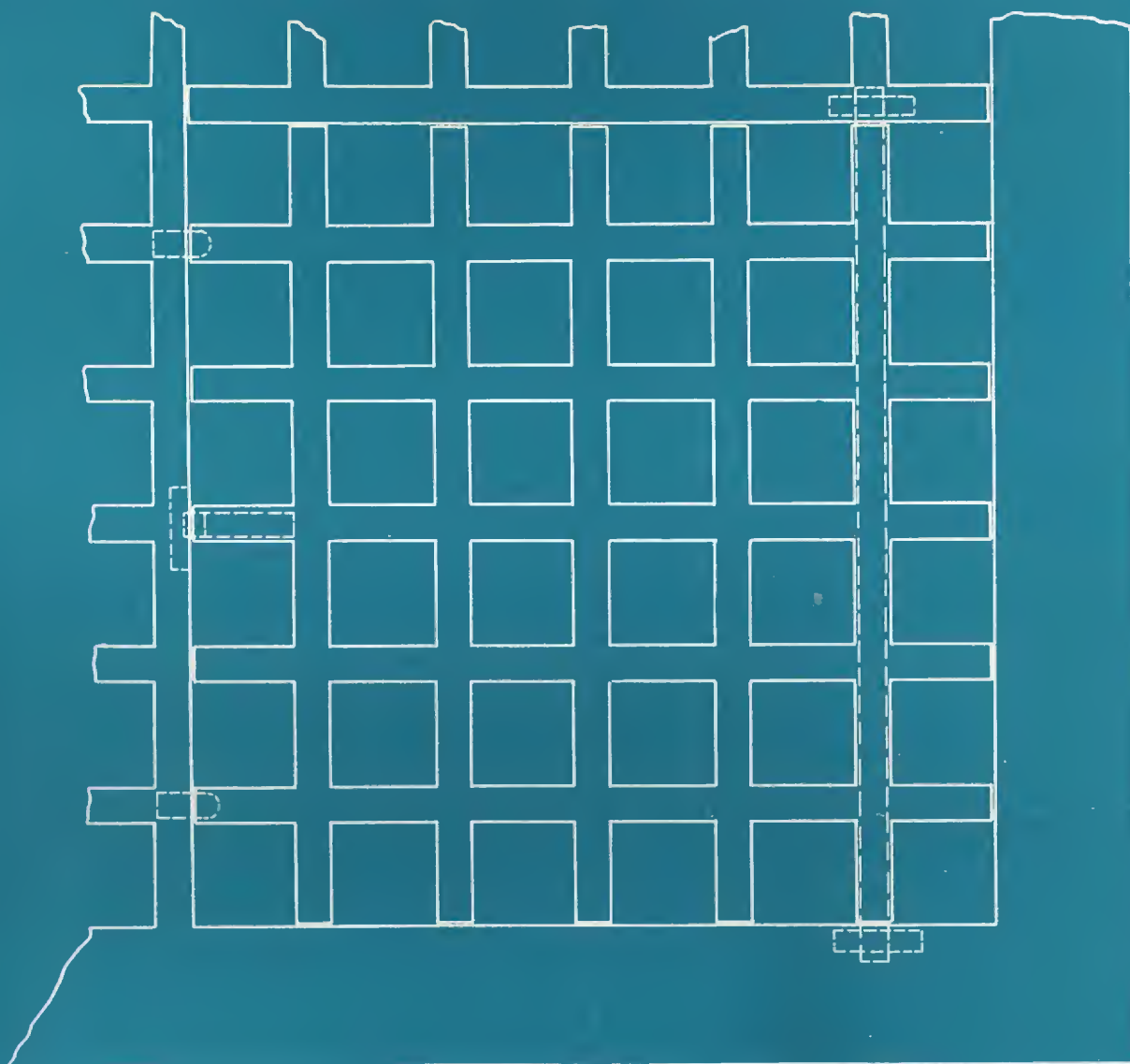
Concealed Door in H. & C. Grilles

In cases where it is not necessary to secure access to an enclosed radiator, except occasionally, but where frequent access to radiator valves is necessary, we can furnish in grilles attached by means of the methods described in this folder, an invisible door at a much lower cost than hinging the entire grille to an angle frame. These doors are not easily visible and do not mar the appearance of the grille.

Suggested Specifications

In order to secure the best results we suggest that you incorporate in your specifications Paragraph A, given below, and also one of the paragraphs—one to ten—which describe in detail proper methods of installing grilles.

Paragraph A

All grilles shall be Class Number......manufactured by the Hart & Cooley Manufacturing Company, New Britain, Conn., made from (.109) or (.134) thick (steel, brass, bronze); finished in (prime coat, black japan, white japan, bronze paint, electroplated—give color); per sizes shown on the plans which represent the (opening-overall) dimensions. Margins shall be approximately.....inches all around.

Number One

All grilles shall be drilled and countersunk as near the edge as possible for ¾" No. 8 wood screws. They shall be attached to woodwork surrounding the opening by means of screws, grilles overlapping by approximately 1". When installing, place center screws in the grille first, leaving corner screws until the last, to avoid buckle.

Number Two

All grilles shall be set flush with face of marble which shall be rabbeted ($\frac{1}{8}$-$\frac{3}{16}$") to receive same. They shall be held in place by means of Z clip as described in Hart & Cooley folder No. 8, method No. 2.

Number Three

All grilles shall be drilled and countersunk as near the edge as possible for ¾" No. 8 wood screws. Grilles shall set flush with surrounding woodwork which shall be rabbeted ($\frac{1}{8}$-$\frac{3}{16}$") to receive same. Center screws shall be set first, leaving corner screws until the last to avoid buckle, as described in Hart & Cooley folder No. 8, method No. 3.

Number Four

All grilles shall be hinged to a 1 x 1 x ⅛" outside angle frame. This frame shall be drilled and countersunk in the (face—inside leg of angle) to receive a 1½" No. 8 wood screw as illustrated in Hart & Cooley folder No. 8, method No. 4.

Number Five

All grilles shall be screwed to 1 x 1 x ⅛" outside angle frame which shall be securely fastened into place by means of round head wood screws through inside leg of angle into surrounding woodwork. Surrounding woodwork shall be rabbeted ⅛" to receive angle frame. For detail see Hart & Cooley folder No. 8, method No. 5.

Number Six

All grilles shall be fastened by means of machine screws to a 1½ x No. 16 band iron frame. This frame shall be securely fastened to the opening before grille is installed. See Hart & Cooley folder No. 8, method No. 6.

Number Seven

All grilles in marble openings shall be attached by means of machine screws to inside frames made from 1 x 1 x ⅛" angle. The marble must not be drilled in any way. Frame shall be secured by means of clips and expansion bolts to the brick or terra-cotta behind the marble. See Hart & Cooley folder No. 8, method No. 7.

Number Eight

All grilles shall be hinged to a 1 x 1 x ⅛" inside angle frame. Frames shall be secured to opening by means of wood screws passing through inside leg of this frame into surrounding woodwork. For detail see Hart & Cooley folder No. 8, method No. 8.

Number Nine

All openings shall be surrounded by ⅛" band frame which shall be secured to the opening by means of wood screws or expansion bolts placed in the lower edge of this frame. Openings shall be plastered up to frame and grilles secured to frame by means of lugs as shown in detail in Hart & Cooley folder No. 8, method No. 9.

Number Ten

All radiator grilles shall be equipped with invisible doors for access to the (exhaust-supply) valves. These doors shall be placed so that the center of the door will line up approximately with the center of the valve handle. Doors shall be as shown in Hart & Cooley folder No. 8, method No. 10.